Connected and Autonomous Vehicles and Other Emerging Technologies
The Continued Transformation of Our Transportation System

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Technology Affecting (Improving?) Transportation

**Mobility**
- 1886: First modern car is built by Karl Benz; replaces horse and buggy

**Safety**
- 1950s: First VMS signs introduced
- 1996: GM introduces OnStar, the first connected car feature brought to market
- 1998: Mercedez-Benz introduces brake assist
- 2009: Google’s Waymo begins testing its self-driving car project

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**Mobility**
- 1922: Automatic control of interconnected traffic lights was introduced

**Mobility; environment**
- 1956: Interstate highway system commences

**Mobility; safety; environment**
- 1990s: Modern roundabouts emerge in the United States

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**Safety**
- 2009: Google’s Waymo begins testing its self-driving car project

**Safety**
- 2005: Google Maps is released

**Safety**
- 2014: Tesla Autopilot is released, providing semiautonomous driver assist

**Safety**
- 2020: Google’s Waymo begins testing its self-driving car project
5th Avenue, New York City
A. How will technology disrupt our future?
B. How do we plan for the disruption?
Hype Cycle for Emerging Technologies, 2018

Source: Gartner (August 2018)
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What is the reality?

- **More Connected**: CV technology progresses rapidly to 85%, but AV stagnates
- **Somewhat Automated**: AVs are proven safe but only in certain lanes; about half of all vehicle have some sort of automation
- **Fully Autonomous and Shared**: either integrated or with competing fleets of TNC providers; 70% AV penetration
CV Uncertainties

- Future of the NHTSA rulemaking
- Cybersecurity and hacking concerns
- Evolving standards and uncertainties about OEM/public sector V2I integration
- Customer preference for connectivity
AV Uncertainties

• Liability, and the shift of responsibility from drivers to auto manufacturer
• Insurance
• Legislation
• Security
• Consumer preference
Presentations Today

1. **Connected Vehicle Pilot Deployment Program**  
   Govind Vadakpat, United States Department of Transportation

2. **Planning for Future Mobility In a Performance-Based World**  
   Steve Gayle, RSG

3. **From Slow Roll to RoboTransit: Scenario Planning for Revolutionary Vehicle Technology**  
   Hannah Twaddell, ICF

4. **MPO Automated Vehicle/Connected Vehicle Guidance**  
   Mark Reichert, Florida Department of Transportation

5. **The Need for Counter Strategies**  
   Mike Wallace, Fehr and Peers